



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,446	06/26/2003	Tukaram K. Hatwar	85363ARLO	2946

7590 08/04/2004

Thomas H. Close  
Patent Legal Staff  
Eastman Kodak Company  
343 State Street  
Rochester, NY 14650-2201

EXAMINER

GARRETT, DAWN L

ART UNIT	PAPER NUMBER
----------	--------------

1774

DATE MAILED: 08/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/606,446

Applicant(s)

HATWAR ET AL.

Examiner

Dawn Garrett

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Objections*

1. Claims 2-6, 12, 15, 22, 23, 30, 32, 39, and 40 are objected to because of the following informalities:

a. Claim 40 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 40 appears to be a duplicate of claim 39.

b. Claim 2 uses the term “hole-transporting or the electron-transporting blue stabilizing dopant material” whereas claim 1 describes “the blue light-emitting layer being doped with an electron-transporting or a hole-transporting material or both” and does not expressly use the words “blue” or “stabilizing” to describe the hole transporting and electron transporting dopants for the light-emitting layer. Similarly, claims 3-6 set forth these dopants with language inconsistent with the claim 1 language. Use of consistent terminology for the hole transporting and electron transporting dopants of the light emitting layer is suggested to avoid confusion of these hole transporting and electron transporting dopants with the blue light-emitting compound dopant.

c. It is suggested that “blue emitting dopant” in claims 12 and 15 be changed to “blue light-emitting compound dopant” for consistency in terminology with claim 1 and to avoid confusion of this dopant with the other dopants present in the light emitting layer.

- d. The word “the” should be inserted before “hole injecting layer” in claim 22.
- e. The word “the” should be inserted before “thickness” in claim 23.
- f. In claim 30, it is suggested that “has the formula:” be changed to “is selected from the group consisting of”. Also, “or” between compounds G-1 and G-2 should be replaced with a comma. A comma should be placed after G-2. The phrase “and compounds suitably represented by formulas:” should be deleted. The semi-colons between each of G-3 to G-7 should be changed to commas.
- g. The word “a” should be inserted before “buffer” in claim 32.
- h. In claim 39, “; or” between the first two listed compounds should be changed to “, and”.
- i. In claim 39, “and a blue light-emitting dopant includes” should be changed to “and wherein the blue light-emitting dopant includes”. (Claim 40 has the same language; however, it is suggested that claim 40 be deleted as it is a duplicate of claim 39).

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "substantially" in claim 1 is a relative term which renders the claim indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would

not be reasonably apprised of the scope of the invention. The specification does not appear to further define the metes and bounds of the term “substantially” to describe white light.

4. The limitation of claim 1 “...selectively doped with a compound which emits light in the yellow region of the spectrum which corresponds to an entire layer or a partial portion of a layer in contact with the blue light-emitting layer” is not understood, because the use of the word “corresponds” is unclear. It is unclear if the word “corresponds” means that the light emitted is complimentary to the light of the blue light-emitting layer or if the word “corresponds” merely means the dopant is in all or part of the layer which comprises it. Clarification and/or correction with regard to this phrase using the word “corresponds” is required.

5. Claims 11 and 14 are indefinite because they set forth the phrase “the blue dopant”. Claim 1 sets forth three different types of dopants for the blue light emitting layer: a blue light-emitting compound and a hole transporting dopant and/or electron transporting dopant. It is unclear which type of dopant applicant intends to further limit in claims 11 and 14, because claim 1 does not use the specific term “blue dopant”.

6. In claim 30, the phrase “compounds suitably represented by formulas” is considered indefinite. It is unclear what is intended by the word “suitably”. It is unclear how the compounds could vary from the way they are listed. The phrase is unnecessary and the objections section above suggests deleting the phrase “and compounds suitably represented by formulas:”.

7. Claim 31 is confusing because the claim sets forth a concentration of the green dopant by volume of “the host material”. It is assumed, for the purpose of examination, that applicant intends the green dopant to be described in terms of amount per electron transporting material in

the electron transporting layer; however, the only “host material” expressly listed in the claims is the host material in the light-emitting layer of claim 1. Clarification and/or correction as to the intended host material set forth in claim 31 is required.

8. Claims 34 and 36 set forth a color filter array disposed on the substrate; however, claim 1 does not recite a substrate, so the position of the color filter array can not be ascertained.

9. Claim 35 sets forth a color filter array disposed on the buffer layer; however, claims 1 and 27, upon which claim 35 depends, do not recite a buffer layer. Accordingly, the position of the color filter array can not be ascertained.

#### ***Allowable Subject Matter***

10. Claims 1-39 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

The closest prior art is considered to be Hieda et al. (US 2003/0170496). Hieda et al. teach in par. 98 a device comprising a blue doped light emitting layer and a hole transporting layer doped with yellow emitting rubrene. Hieda et al., either alone or in combination with other art, fail to suggest a blue light emitting layer comprising a host material doped with both of a blue light emitting dopant and either a hole transporting dopant and/or an electron transporting dopant in combination in an electroluminescent device with either a hole transporting layer or an electron transporting layer doped with a yellow emitting compound.


#### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is 571-272-1523. The examiner can normally be reached Monday through Friday during normal business hours. Please allow the examiner twenty-four hours to return your call.

If reasonable attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye, can be reached at 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
DAWN GARRETT  
EXAMINER  
ART UNIT 1774

D.G.  
July 28, 2004